

#464

APOLLO SOYUZ (ASTP-APOLLO)

PHOTOMETER INTENSITIES VS TIME

75-066A-19B

ASTP-APOLLO

PHOTOMETER INTENSITIES VS TIME, TAPE

75-066A-19B

THIS DATA SET HAS BEEN RESTORED. THERE WAS ORIGINALLY ONE 7-TRACK, 800 BPI TAPE WRITTEN IN BINARY. THERE IS ONE RESTORED TAPE. THE DR TAPE IS A 3480 CARTRIDGE AND THE DS TAPE IS 9-TRACK, 6250 BPI. THE ORIGINAL TAPE WAS CREATED ON A CDC 3000 COMPUTER IN SIGMA 7 FORMAT AND WAS RESTORED ON AN IBM 9021 COMPUTER. THE DR AND DS NUMBER ALONG WITH THE CORRESPONDING D NUMBER AND TIME SPAN IS AS FOLLOWS:

DR#	DS#	D#	FILES	TIME SPAN
DR005681	DS005681	D032068	2	07/22/75 - 07/22/75

REQ. AGENT

CAW

RAND NO.

RD0976

ACQ. AGENT

RNH

Apollo Soyuz (ASTP-Apollo)

PHOTOMETER INTENSITIES VS TIME

75-066A-19B

This data set consists of one tape. The tape was created on the CDC3000 computer in SIGMA 7 format. The tape is 7 track, binary, 800 BPI and has 2 files. The D tape has Ephoris data on the first file followed by TWO END-OF-FILE marks. The second file (really the 3rd) contains TIME VS INTENSITY data. The C tape has the normal END-OF-FILE marks between files.

The format for this tape is printed on the following pages.

D#  
D-32068

C#  
C-20200

TIME SPAN  
07/26/75



THE UNIVERSITY OF WYOMING  
UNIVERSITY STATION, BOX 3905  
LARAMIE, WYOMING 82071

September 5, 1978

NSSDC Data Center  
Goddard Space Flight Center  
Code 601  
Greenbelt, Maryland 20071

Attention: Richard Horowitz

Dear Mr. Horowitz:

I have copied the original tapes supplied to us by NASA for the ASTP Ephemeris and Time vs Intensity data onto the tape (University of Wyoming; TP18) enclosed with this letter.

The Ephemeris data is first on the tape followed by two End of File marks, then the Time vs Intensity data followed by two End of File marks. The tape is CDC3000 compatible, 7 track, 800 BPI, odd parity.

When copying, read errors occurred on the following records:

26	3254	4930	5297
2768	4096	5227	5315
3055	4352	5240	

Total Ephemeris records = 5465.

When copying the Time vs Intensity data a read error occurred on the 86th record. Total number of records = 852.

There were no read errors for tape University of Wyoming TP18, which is enclosed.

Sincerely,

*Catherine E. Ryan*

Catherine E. Ryan  
Research Associate

CER/jkd

Enclosure

EPHEMERIS

TAPE FORMAT FOR MA-007 (UNIVERSITY OF WYOMING)

Machine	-Sigma 7. JSC does not have a Univac 1108 to Sigma 7 conversion package. However, the University of Wyoming does have a CDC 3000 to Sigma 7 conversion package. So a CDC 3000 compatible tape is supplied to the university.
Density	<del>6250</del> <del>=800 bpi</del>
Parity	-odd (binary)
Number tracks	<del>-19</del>
Word length	-48 bits
Word type	-floating point
Number of words	-243 words per record, of which the last two words are zeros. See <u>Data records</u> for the definition of the first 241 words.
Read	-Use "BUFFER IN."

Data records. - 241 single-precision words. The format for the data records is specified in table 7-I. The table lists the parameter name, the type of parameter, the parameter location, and the parameter definition. Note that the parameter units are kilometers, seconds, and degrees unless otherwise specified.

TIME vs INTENSITY

MA007 STRATOSPHERIC MEASUREMENT

P.I. TAPE FORMAT

PHYSICAL RECORD #1

Two hundred forty (240) BCD characters consisting of 48 characters as shown below followed by 192 blanks.

APOLLObSOYUZbTESTbPROJ.bEXPMA007bbbMMDDYYbRUNbX

MM/DD/YY = date of run where

MM = month (01-12)

DD = day (01-31)

YY = year (75)

b = blank

PHYSICAL RECORD #2

Duplicate of record #1

PHYSICAL RECORD #3-n

Data records where n = total number of records. Each physical record will contain 24 logical records. Each logical record will consist of 120 bits of data as follows:

<u>BITS</u>	<u>CONTENTS</u>
1-36	Time (integer milliseconds)
37-48	Unused
49-60	Quality reference measurement #1
61-72	Quality reference measurement #2
73-80	Unused
81-84	Unassigned four bits of A/G word 02065
85-96	CL9790 (Bit 85 is MSB and bit 96 is LSB)
97-120	Unused

Time used in bits 1-36 will be GMT of frames 1, 6, 11, ...46, 1,6,11,..., etc. Bit 1 is the leftmost (MSB) and bit 120 is the right most (LSB) of the 120 bits.

TABLE 7-1.- EXPERIMENT PORT DATA TAPE FORMAT

<u>Parameter name(s)</u>	<u>Type of parameter</u>	<u>Parameter location</u>	<u>Parameter definition</u>
GMT	Nominal	1-6	Greenwich mean time (yr (mod. 1900), month, day, hr, min, sec)
OPFLAG	Nominal	7	Code word to designate which experiments are operating
AETH, AETM, AETS GETH, GETM, GETS CTEH, CTEM, CTES PETH, PETM, PETS	Nominal	8-10	Ground elapsed time (hr, min, sec)
X1, Y1, Z1, XD1, YD1, ZD1	Nominal	11-13	ASTP mission elapsed time (hr, min, sec)
	Nominal	14-16	Onboard clock elapsed time (hr, min, sec)
	Nominal	17-19	Phase elapsed time (hr, min, sec)
ALF1, DLT1, BT1, AZ1, RI, V1	Nominal	20-25	State vector - Cartesian elements in the mean of 1950.0 coordinate system
SMA1, ECC1, INC1, NOD1, OMG1, TAI	Nominal	26-31	State vector - ADBARV elements in the mean of 1950.0 coordinate system
X12, Y12, Z12, XD12, YD12, ZD12	Nominal	32-37	State vector - the Keplerian elements in the mean of 1950.0 coordinate system
ALF12, DLT12, BT12, AZ12, RI2, V12	Nominal	38-43	State vector - Cartesian elements in the geographic rotating coordinate system
SMA12, ECC12, INC12, NOD12, OMG12, TAI12	Nominal	44-49	State vector - ADBARV elements in the geographic rotating coordinate system
X3, Y3, Z3, XD3, YD3, ZD3	Nominal	50-55	State vector - Keplerian elements in the geographic rotating coordinate system
	Nominal	56-61	State vector - Cartesian elements in the true of date coordinate system

TABLE 7-I. - EXPERIMENT SUPPORT DATA TAPE FORMAT - Continued

<u>Parameter name(s)</u>	<u>Type of parameter</u>	<u>Parameter location</u>	<u>Parameter definition</u>
ALF3, DLT3, BTA3, AZ3, R3, V3	Nominal	62-67	State vector - ADBARV elements in the true of date coordinate system
SMA3, ECC3, INC3, NOD3, OMG3, TA3	Nominal	68-73	State vector - Keplerian elements in the true of date coordinate system
X4, Y4, Z4, XD4, YD4, ZD4	Nominal	74-79	State vector - Cartesian elements in the geographic inertial coordinate system
ALF4, DLT4, BTA4, AZ4, R4, V4	Nominal	80-85	State vector - ADBARV elements in the geographic inertial coordinate system
SMA4, ECC4, INC4, NOD4, OMG4, TA4	Nominal	86-91	State vector - Keplerian elements in the geographic coordinate system
XSI, YSI, ZSI, XDSI, YDSI, ZDSI	Nominal	92-97	Solar Cartesian elements in the mean of 1950.0 coordinate system
RF11, RF12, RF13	Nominal	98-100	Row 1 of REFSMMAT
CDUX, CDUY, CDUZ	Nominal	101-103	Gimbal angles
RF21, RF22, RF23	Nominal	104-106	Row 2 of REFSMMAT
LAT4, LON4, ALT4	Nominal	107-109	Geodetic altitude, latitude, and longitude
RF31, RF32, RF33	Nominal	110-112	Row 3 of REFSMMAT
SEL10, SAZ10	Nominal	113-114	Solar azimuth and elevation wrt the subvehicle point
CHA	Nominal	115	Greenwich hour angle
T11, T12, T13	Nominal	116-118	Row 1 of the T matrix (mean of 1950.0 to true of date)
E11, E12, E13	Nominal	119-121	Row 1 of the E matrix (mean of 1950.0 to ecliptic mean of 1950.0)

TABLE 7-I.- EXPERIMENT SUPPORT DATA TAPE FORMAT - Continued

<u>Parameter name(s)</u>	<u>Type of parameter</u>	<u>Parameter location</u>	<u>Parameter definition</u>
T21, T22, T23	Nominal	122-124	Row 2 of the T matrix
E21, E22, E23	Nominal	125-127	Row 2 of the E matrix
T31, T32, T33	Nominal	128-130	Row 3 of the T matrix
E31, E32, E33	Nominal	131-133	Row 3 of the E matrix
GIMB	Nominal	134	Gimbal status flag
REV	Nominal	135	Rev. number
SUNF	MA-007	136	Sunrise/sunset flag
SUNH, SUNM, SUNS	MA-007	137-139	Sunrise/sunset time (hr, min, sec)
XANG, YANG	MA-007	140-141	x angle and y-angle deviations
X11, Y11, Z11	MA-048, MA-083, MA-088	142-144	Geomagnetic position of the vehicle
SCSA	MA-048, MA-083, MA-088	145	Vehicle - Sun angle
ALF2, DLT2	MA-048, MA-083, MA-088	146-147	Right ascension and declination of the vehicle in the ecliptic mean of 1950.0 coordinate system
LIRHAI, L1DEC1	MA-048, MA-083, MA-088	148-149	Right ascension and declination of the LOS in the mean of 1950.0 coordinate system
LIRH2, L1DEC2	MA-048, MA-083, MA-088	150-151	Right ascension and declination of the LOS in the ecliptic mean of 1950.0 coordinate system

TABLE 7-I.- EXPERIMENT SUPPORT DATA TAPE FORMAT - Continued

<u>Parameter name(s)</u>	<u>Type of parameter</u>	<u>Parameter location</u>	<u>Parameter definition</u>
LIAZ, L1EL	MA-048, MA-083, MA-088	152-153	Azimuth and elevation of the LOS
F3RHAI, F3DCA1	MA-048, MA-083, MA-088	154-155	Right ascension and declination of FOV A in the mean of 1950.0 coordinate system for MA-083
F3RHBI, F3DCB1	MA-048, MA-083, MA-088	156-157	Right ascension and declination of FOV B in the mean of 1950.0 coordinate system for MA-083
F3RHCl, F3DCC1	MA-048, MA-083, MA-088	158-159	Right ascension and declination of FOV C in the mean of 1950.0 coordinate system for MA-083
F3RHD1, F3DCD1	MA-048, MA-083, MA-088	160-161	Right ascension and declination of FOV D in the mean of 1950.0 coordinate system for MA-083
F8RHAI, F8DCA1	MA-048, MA-083, MA-088	162-163	Right ascension and declination of FOV A in the mean 1950.0 coordinate system for MA-088
F8RHBI, F8DCB1	MA-048, MA-083, MA-088	164-165	Right ascension and declination of FOV B in the mean 1950.0 coordinate system for MA-088
F8RHCl, F8DCC1	MA-048, MA-083, MA-088	166-167	Right ascension and declination of FOV C in the mean 1950.0 coordinate system for MA-088
F8RHD1, F8DCD1	MA-048, MA-083, MA-088	168-169	Right ascension and declination of FOV D in the mean 1950.0 coordinate system for MA-088

TABLE 7-1.- EXPERIMENT SUPPORT } TAPE FORMAT - Continued

<u>Parameter name(s)</u>	<u>Type of parameter</u>	<u>Parameter location</u>	<u>Parameter definition</u>
L1ARAI, L1ADCI	MA-048, MA-083, MA-088	170-171	Corrected right ascension and declination of the LOS in the mean of 1950.0 coordinate system
VRHAI, VDEC1	MA-048, MA-083, MA-088	172-173	Right ascension and declination of velocity in the mean of 1950.0 coordinate system
VRHA2, VDEC2	MA-048, MA-083, MA-088	174-175	Right ascension and declination of velocity in ecliptic mean of 1950.0 coordinate system
VLOS	MA-048, MA-083, MA-088	176	Velocity - LOS angle
LONS2	MA-048, MA-083, MA-088	177	Longitude of the vehicle in the ecliptic mean of 1950.0 coordinate system
ESLOS	MA-048, MA-083, MA-088	178	Angle between Earth-Sun vector and the LOS
ESLOSS	MA-048, MA-083, MA-088	179	Supplement of ESLOS
THETA	MA-106	180	Angle between $x_v$ -axis and the perpendicular to the CSM velocity vector
BMAG	MA-106	181	Magnetic field intensity (gauss)
LNAG	MA-106	182	L-shell radius (e.r.)
ALPHIO, BETA10, PHI10	MA-106	183-185	Orientation angles of the vehicle body axes wrt the UEN

TABLE 7-I.- EXPERIMENT SUPPORT DATA TAPE FORMAT - Continued

<u>Parameter name(s)</u>	<u>Type of parameter</u>	<u>Parameter location</u>	<u>Parameter definition</u>
LATA, LONA	MA-136	186-187 FOV A corner	Geodetic latitude and longitude of the
LATB, LONB	MA-136	188-189 FOV B corner	Geodetic latitude and longitude of the
LATP, LONP	MA-136	190-191	Geodetic latitude and longitude of the
LATC, LONG	MA-136	192-193 FOV C corner	Geodetic latitude and longitude of the
LATD, LOND	MA-136	194-195 FOV D corner	Geodetic latitude and longitude of the
SF	MA-136	196	Scale factor
DT	MA-136	197	Time interval between adjacent photographs
ALTR	MA-136	198	Attitude rate wrt the principal point
HV	MA-136	199	Horizontal velocity wrt the principal point
TILTZA	MA-136	200	Tilt azimuth angle
TILT	MA-136	201	Tilt angle
SELP, SAZP	MA-136	202-203	Sun elevation and azimuth wrt the
LATS, LONS	MA-136	204-205	Subsolar point - geodetic latitude and
ALPHA	MA-136	206	longitude

TABLE 7-1.- EXPERIMENT SUPPORT DATA TAPE FORMAT - Continued

Parameter name(s)	Type of parameter	Parameter location	Parameter definition
SWING	MA-136	207	Swing angle
EMISS	MA-136	208	Emission angle
PHASE	MA-136	209	Phase angle
NDA	MA-136	210	North deviation angle
XTIILT	MA-136	211	x-tilt angle
YTIILT	MA-136	212	y-tilt angle
HEAD	MA-136	213	Heading angle
SR	MA-136	214	Slant range to the principal point
OVR	MA-136	215	Forward overlap ratio
PHI, KAPPA, OMEGA	MA-136	216-218	Angles that rotate the camera axes system into the local-horizontal system
AL	MA-136	219	Surface arc length between nadir and the principal point
FL	MA-136	220	Focal length of camera lens
LOSX, LOSY, LOSZ	MA-136	221-223	Direction cosines of the camera LOS vector in the geographic coordinate system
GC11, GC12, GC13	MA-136	224-226	Row 1 of the geographic to camera transformation
LH11, LH12, LH13	MA-136	227-229	Row 1 of the local horizontal to camera transformation

TABLE 7-I.- EXPERIMENT SUPPORT DATA TAPE FORMAT - Concluded

<u>Parameter name(s)</u>	<u>Type of parameter</u>	<u>Parameter location</u>	<u>Parameter definition</u>
CC21, CC22, CC23	MA-136	230-232	Row 2 of the geographic to camera transformation
LH21, LH22, LH23	MA-136	233-235	Row 2 of the local horizontal to camera transformation
GC31, GC32, GC33	MA-136	236-238	Row 3 of the geographic to camera transformation
LH31, LH32, LH33	MA-136	239-241	Row 3 of the local horizontal to camera transformation



72	201075423627	200057443555
7680	577423376230	577527773656
8160	201276337777	70057771554
8640	201070477030	10001775262
9120	2114416404	30002007777
9600	6337323530	6771715727
10080	17776273425	100017705113
10560	200072556445	4417000615
11040	0000000000	7000202400
11520	0000000000	0000000000
12020	0000000000	0000000000
12480	0000000000	0000000000
12960	0000000000	0000000000
13440	0000000000	0000000000
13920	0000000000	0000000000
14400	0000000000	0000000000
14880	0000000000	0000000000
15360	0000000000	0000000000
15840	0000000000	0000000000
16320	0000000000	0000000000
16800	0000000000	0000000000
17280	0000000000	0000000000
17760	0000000000	0000000000
18240	0000000000	0000000000
18720	0000000000	0000000000
19200	0000000000	0000000000
		006300

FILE	RECORD	LENGTH	1947 BYTES
	1	000020037000	540000000000
	480	202475022000	000000000005
	960	200250702467	000000000000
	1440	000000000000	000000000000
	1920	577626613254	000000000000
	2400	20376137642	437160002006
	2880	201070432132	562230001767
	3360	577626705665	500057653622
	3840	200373636357	777220002006
	4320	291035613377	153360001775
	4800	577626705665	75005763256
	5280	20376137642	100020156335
	5760	201070432132	500057653622
	6240	577626705665	777220002006
	6720	20376137642	100020156335
	7200	201070432132	500057443555
	7680	577423376224	477527773656
	8160	201276337777	70057771554
	8640	201070475406	40001775262
	9120	201144416404	30002007777
	9600	6037323530	6771715727
	10080	17776273425	100017705113
	10560	200072556445	700020024000
	11040	590000000000	000000000000
	11520	0000000000	0000000000
	12020	0000000000	0000000000
	12480	0000000000	0000000000
	12960	0000000000	0000000000
	13440	0000000000	0000000000
	13920	0000000000	0000000000
	14400	0000000000	0000000000
	14880	0000000000	0000000000
	15360	0000000000	0000000000
	15840	0000000000	0000000000
	16320	0000000000	0000000000
	16800	0000000000	0000000000
	17280	0000000000	0000000000
	17760	0000000000	0000000000